Remarks

The Office Action dated April 30, 2010, notes that the objection to claim 7 has been withdrawn and maintains the following rejections: claims 1-6, 8-9 and 11-14 stand rejected under 35 U.S.C. § 103(a) over Wilkerson (U.S. Patent No. 7,143,272); claims 7 and 15 stand rejected under 35 U.S.C § 103(a) over the '272 reference in view of the Chang reference ("Improving Branch Prediction Accuracy by Reducing Pattern History Table Interference"); claims 10 and 16 stand rejected under 35 U.S.C. § 103(a) over the '272 reference in view of LeFevre (U.S. Patent No. 6,854,066); and claims 17-20 stand rejected under 35 U.S.C. § 103(a) over the '272 reference in view of the Kime reference ("Logic and computer design fundamentals"). In the following discussion, Applicant does not acquiesce in any regard to averments in this Office Action.

Applicant respectfully traverses the § 103(a) rejections of all claims over the '272 reference. The '272 reference, alone or in combination with any of the asserted references fails to correspond to certain aspects of the claimed invention directed to an activity monitor which measures the system activity corresponding to logic state changes since a previous branch. For example, the asserted computation history generator has not been shown to ascertain the extent, dimensions, quantity or capacity of (*i.e.*, measure) the system activity that has occurred since a previous branch. Regardless of whether the computational history has some tangential association to the amount of system activity that has occurred, it does not provide a measurement of the system activity, and therefore the '272 reference lacks correspondence. Instead, the computational history, or data flow graph, involves the use of recursively modified register values. These register values, as explained in more detail below, are not taught to be used to ascertain the extent, dimension, quantity or capacity of system activity. Thus, they do not provide a measure of the system activity.

The generation of a computation history, or data flow graph, of the '272 reference is disclosed as depending:

> on knowing a previous computation history. By generating computation histories recursively, each computation history identifies (via the hash) all values that affected the current value of the register. There is no limit on the number of objects that may affect the computation history: the computation history effectively traces the entire genesis of the current data value in the register. ('272 reference, Col. 5:19-28).

Because the computational history of the '272 reference is recursive, and the newest computational history is added to the old computational history, the computational history does not determine an amount of system activity since the previous branch, and potentially includes information regarding instructions that occurred prior to the previous branch. The computational history is "an amalgamation of information about all the things that affect the current data value in the register." Col. 3:55-56. Further, the '272 reference discloses the possibility of generating computation histories where "only static data are used to generate computation histories [where] . . . things that are used in generating the computation history are things (usually values of some sort) known at the time the program is compiled." Col. 3:60-64. The disclosure of computational histories using static values illustrates the difference between the claimed system activity and the asserted computational histories. Specifically, any asserted activity monitor does not ascertain the extent, dimension, quantity or capacity of (*i.e.*, measure) the system activity corresponding to the number of logic state changes through the use of computational history. Accordingly the § 103(a) rejections of all claims are improper for lack of correspondence and should be withdrawn.

Applicant further traverses the § 103(a) rejection of claims 17-20 over the '272 reference in combination with the Kime reference for lack of correspondence. The '272 reference, alone or in combination with the Kime reference, fails to correspond to certain aspects of the claimed invention directed to an activity monitor that counts state changes within the logic elements to provide a measure of system activity. The Office Action at pages 8-9 acknowledges that the '272 reference fails to teach aspects of the present invention directed to logic elements and the measure of system activity resulting from counting state changes of the logic elements. The rejection, however, fails to assert any count of the state changes or cite to any portion of either reference which indicates the number (count) of the state changes are tracked in any way. Instead, the Office Action asserts the Kime reference teaches the logic elements in a shift register that would replace the shift register 430 of the '272 reference, and that "A state change occurs for the computational history each time an instruction is executed." Further, the Office Action's previously asserted activity monitor, and corresponding system activity, had nothing to do with shift register 430 of the '272 reference. Rather, the '272 reference discloses that

shifting is used to age the computational histories to "reflect the fact that more recent instructions have a greater impact on the value of the computation history than older instructions." '272 reference Col. 4:52-56. Since computation history is not a count of the state changes within the logic elements, and the shift register is not used to determine system activity, the asserted hypothetical combination of the '272 reference with the Kime reference lacks correspondence. Accordingly the § 103(a) rejection of claims 17-20 is improper and should be withdrawn.

Applicant further traverses the § 103(a) rejection of claims 10 and 16 over the '272 reference in view of the '066 reference for lack of correspondence. The '272 reference alone or in combination with the '066 reference lacks correspondence to certain aspects of the claimed invention directed to the system activity being determined by monitoring a system supply current. In asserting the '066 reference for these aspects the Office Action acknowledges that the '272 reference does not correspond. The '066 reference further does not correspond as the '066 reference is directed to a monitor to compare "the measured terminal voltage of the power source with a set of stored operational terminal voltage limits" of an electronic device. The '066 reference does not disclose using the level of the supply current to determine system activity. Further, the Office Action's proposed hypothetical combination is not asserted to determine the system activity by monitoring the supply current. Rather, the rejection simply states that it would be obvious "that the power management system and the branch predictor of [the '272 reference] can be performed in the same unit." Office Action page 8. However, the claimed activity monitor is not managing the power supply, but monitoring to determine the level of system activity that has occurred since the previous branch. Applicant has amended claim 16 for consistency with claim 10. Accordingly, the § 103(a) rejection of claims 10 and 16 lacks correspondence and should be reversed.

Notwithstanding the above, and in an attempt to facilitate prosecution, Applicant has introduced a number of facilitating amendments. Applicant believes the amendments are largely for formatting purposes and are not narrowing.

In view of the remarks above, Applicant believes that each of the rejections/objections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, David Schaeffer, of NXP Corporation at (212) 876-6170.

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